

DuPont Modeling Methodology and Results

DRAFT

Shimizu Site

June 2003

06/02/03

CAB000375

EID719411

About the Model

Industrial Source Complex Short Term 3 (ISCST3)

Sold/used globally, including in Japan

<http://www.phoenix-r.co.jp/products/products.htm>

Input

Stack height, diameter

Flowrate, temperature

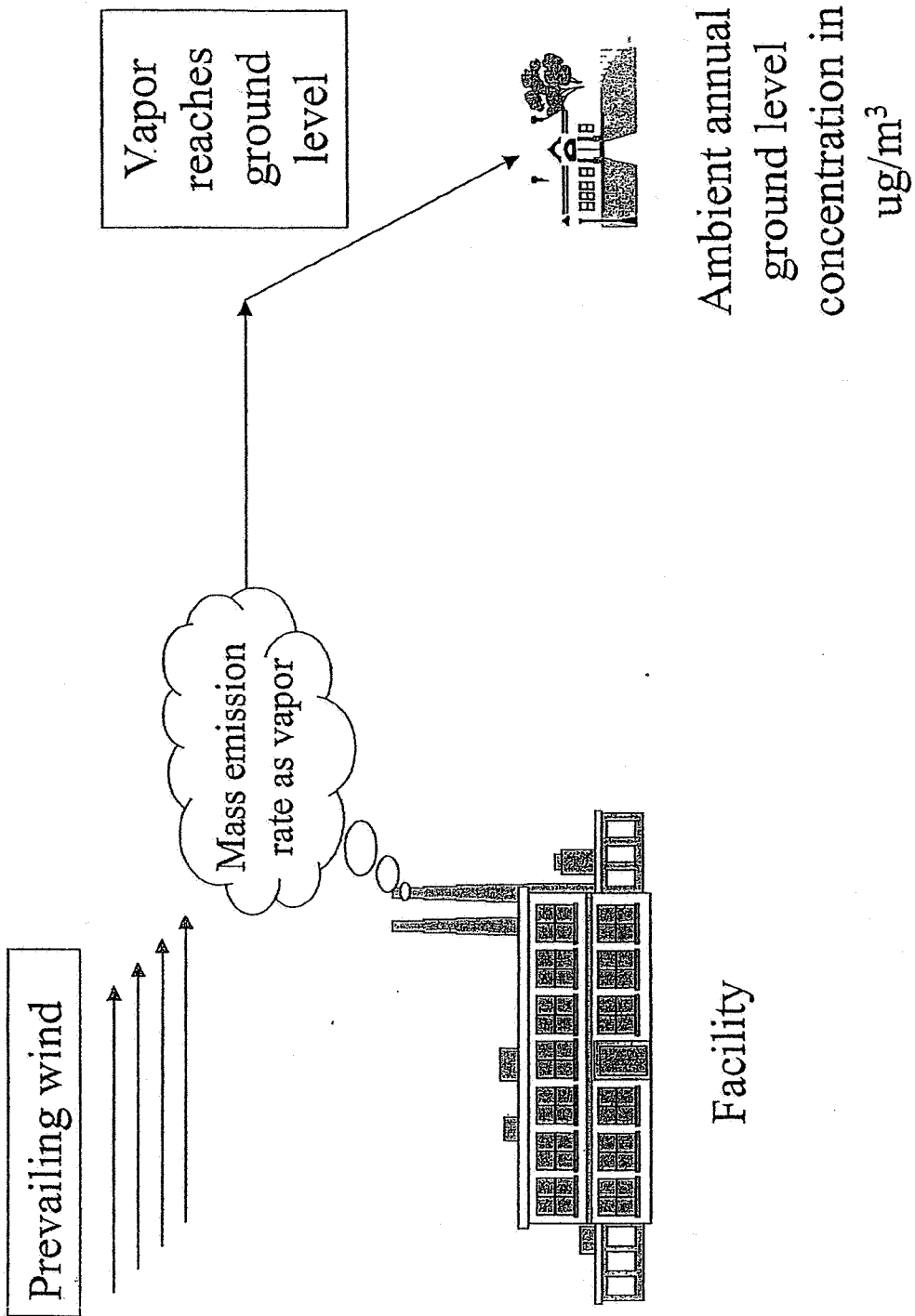
Mass of pollutant (kilogram per hour)

Local meteorological data (Shizouka 1997, 98, 99)

Output

Ambient air concentrations in ug/m³

Max values and locations outside the property line



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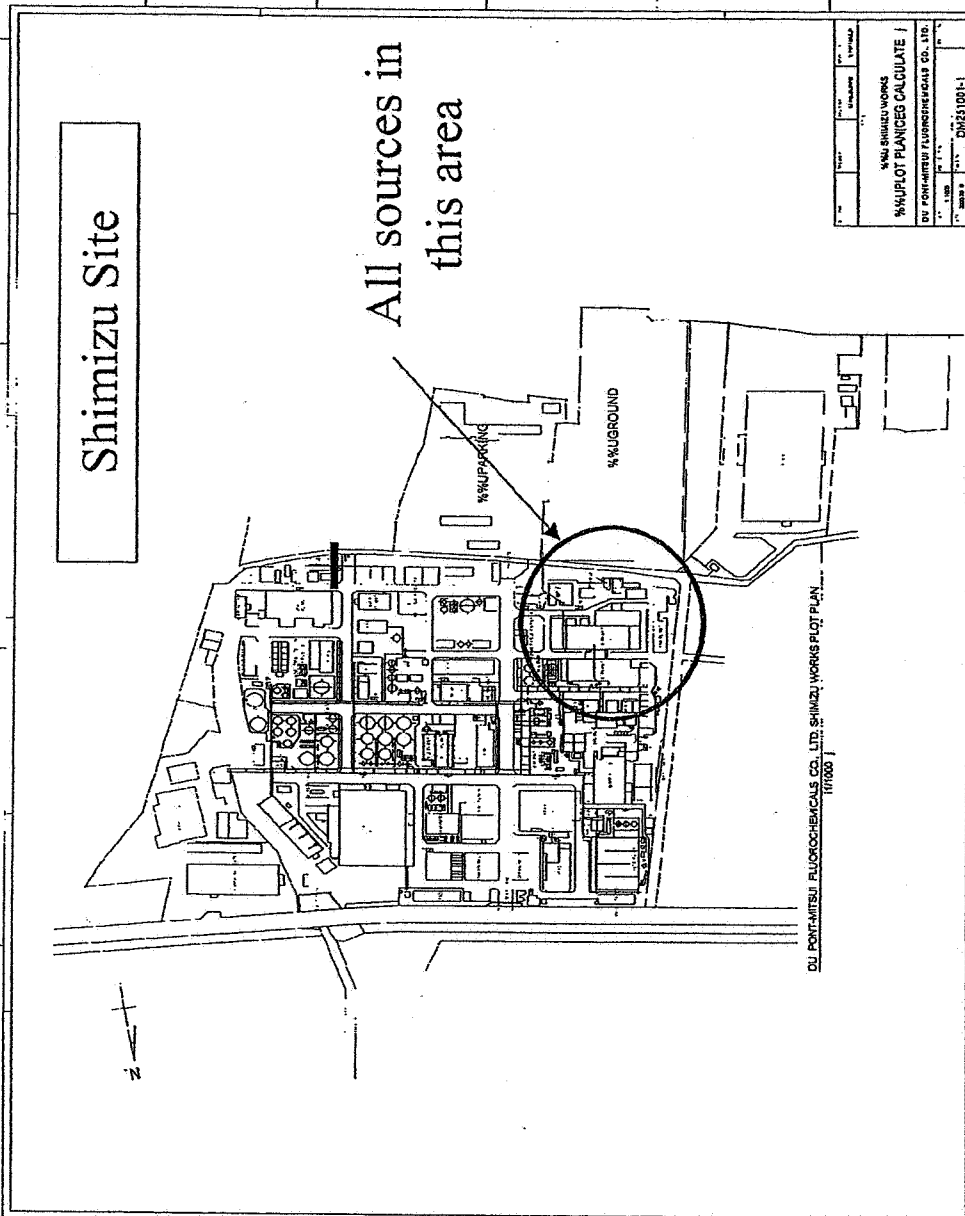
Model Calculations

Ambient air concentrations based on Gaussian Equation

Concentration a function of a vertical term and a dispersion term

Vertical term based on stack height, receptor elevation, plume rise, mixing

Dispersion parameters describe distribution of pollutant in lateral and vertical



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Correct stack height?

CAB000380

Shimizu Modeling Inputs - Emissions Rates

Source ID	Description	Location	Emission Rate, kg/hr	Emission Rate, g/s
1	Pre-scrubber exit for fine powder scrubber (called "AC Scrubber" on map)	D Plant	0.24	0.0667
2	Post-scrubber exit for fine powder scrubber (called "AC Scrubber" on map)	D Plant	0.24	0.0667
3	DBC Scrubber	E Plant: copolymer plant for PFA and FEP	0.07	0.0194
4	MP-2 scrubber	MP-2 building: copolymer type micro-powder	0.125	0.0347

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Preliminary Modeling Results

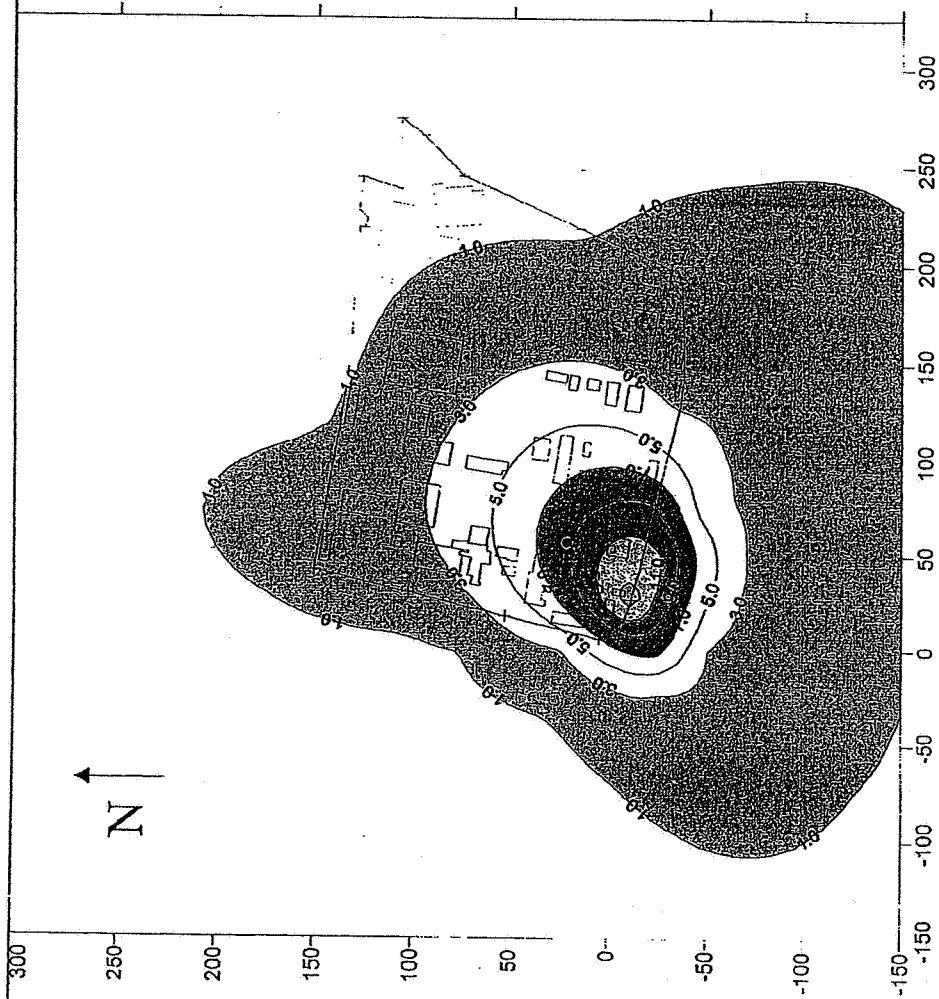
Maximum annual concentrations
calculated as 14 ug/m³

Point of maximum concentration at south
boundary of site (on property line)

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CONTOUR RESULTS FROM MODEL



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Contribution of Sources

Source ID	Description	Location	Height, m	Contribution, ug/m3	Contribution, %
1	Pre-scrubber exit for fine powder scrubber (called "AC Scrubber" on map)	D Plant	8	7.002	50
2	Post-scrubber exit for fine powder scrubber (called "AC Scrubber" on map)	D Plant	15	3.345	24
3		E Plant: copolymer plant for PFA and FEP	18.2	2.953	21
4	DBC Scrubber	MP-2 building: copolymer type micro-	18.1	0.771	5
	MP-2 scrubber				
				total = 14.071	

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